U.S. Department of Energy
Grand Junction Office
2597 B¾ Road
Grand Junction, CO 81503

JUN - 6 2001

Rob Herbert
State of Utah Department of Environmental Quality
Division of Radiation Control
168 North 1950 West
Salt Lake City, UT 84116

Dear Mr. Herbert:

Enclosed is a Data Validation Package and a disk for the Salt Lake City, Utah, Long- Term Surveillance & Maintenance (LTSM) site. This document contains analyses of ground water and surface water (seeps) samples that were collected in December 2000.

Should you have any questions, please call Carl Jacobson of MACTEC-ERS at 970/248-6568.

Sincerely,

Art Kleinrath
LTSM Program Manager

Enclosure

cc w/enclosure:
M. Layton, NRC
South Salt Lake Public Library

cc w/o enclosure:
Project File LSLC 6.7 (A. Garcia)

awk\sleghst.doc

NMSS08
WM-41

UMTRA
Ground Water Project

DATA VALIDATION
SALT LAKE CITY, UTAH
LTSM SITE

December 2000
Water Sampling

Prepared by the
U.S. Department of Energy
Grand Junction Office

SALT LAKE CITY, UTAH
December 2000

DATA PACKAGE CONTENTS

This data package includes the following information:

Item No.	Description of Contents
1.	**Site Hydrologist Summary**
2.	**Data Package Assessment,** which includes the following:

a. Field procedures verification checklist
b. Confirmation that chain-of-custody was maintained.
c. Confirmation that holding time requirements were met.
d. Evaluation of the adequacy of the QC sample results.

3. **Data Assessment Summary,** which describes problems identified in the data validation process and summarizes the validator's findings.

4. **Suspected Anomalies Reports** generated by the UMTRA database system. This report compares the new data set with historical data and designates "suspected anomalies" based on the many criteria listed as footnotes on each page. In aggregate, these criteria cause the suspected anomaly program to be very conservative; many of the data shown in the tables are not, in the evaluators judgment, truly anomalies, but merely natural variations in data or routine changes in laboratory detection limits. The designation "OK" affirms the judgment that the particular entry is not an anomaly and, therefore, requires no further inquiry.

5. **UMTRA Database Printouts** of analytical data organized as follows:

a. Ground water quality data (included on disk)
b. Surface water quality data (included on disk)
c. Time versus concentration graphs
d. Static water level measurement data

6. **Trip Report.**

Site Hydrologist Summary

Site: Salt Lake City

Sampling Period: December 2000

SUMMARY CRITERIA

1. **Did concentrations in water from any domestic wells sampled exceed a ground water standard, primary drinking water standard, or health advisory?**

   There are no domestic wells in the vicinity of the site.

2. **Were standards exceeded at any point-of-compliance wells?**

   There are no point-of-compliance wells at the Salt Lake City site.

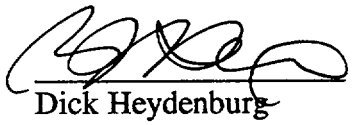
3. **As a result of this sampling round, is there any indication of unexpected contaminated ground water movement?**

   There is no indication of unexpected contaminated ground water movement. Molybdenum and uranium concentrations are below the respective UMTRA standards and are consistent with or lower than historical results (refer to time versus concentration graphs included with the analytical data). Ground water elevations in the shallow unconfined aquifer are consistent at approximately 4225 feet (based on datalogger measurements) and observed water levels in the deeper confined aquifer are approximately 10 feet higher. This confirms that there continues to be an upward vertical hydraulic gradient.

Site Hydrologist Summary (continued)

4. Is there statistical evidence that UMTRA Project related contaminants were detected in a surface body of water in greater concentrations than upstream ambient water quality?

There is evidence that site-related contaminants were detected in surface water in ponds on the site. Surface water results from this round were compared to benchmark values derived from historical results from surface locations 180 and 181, which are located upstream of the site on Mill Creek. Concentration of uranium in surface water in Mill Creek downstream from the site (0.003 mg/L at 182) was slightly above the benchmark value upstream of the site (0.002 mg/L at 181). Concentration of uranium in the ditch (146) was at 0.009 mg/L. Concentrations of uranium in the two ponds along the west edge of the site (148 and 149) were above the MCL at 0.187 and 0.351 mg/L, respectively. Two other ponds along the south edge of the site (150 and 151) were sampled this time and contained concentrations of uranium at 0.087 mg/L. All of the ponds are interconnected with ground water in the shallow unconfined aquifer. During this sampling period, there was no irrigation of the surrounding golf course contributing water to the ponds so elevated concentrations of uranium were anticipated. Concentrations of molybdenum in the ditch (146) and ponds were above the benchmark values established in surface water in Mill Creek, but below the MCL and generally decreasing.



17 Apr 2001

Dick Heydenburg
Site Hydrologist

Date

DATA ASSESSMENT

DATA PACKAGE ASSESSMENT

REQUISITION NUMBERS: 17252 SITE: Salt Lake LABORATORY: GJO ANALYSIS DATES: 1/10/01

REVIEWER: JEFF PRICE (NAME print) J. E. Price (SIGNATURE) March 14, 01 (DATE)

	ICP-MS	ICP-AES	GFAA	FAA	$NaBH_4$	AS	LSc	PC	IC	Gravimetric	Colorimetric	Other	
CHAIN OF CUSTODY	OK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	—	—
HOLDING TIME	OK											—	—
CALIB. VERIFICATION (For AS, internal tracer)	OK									NA		—	—
PREP. BLANKS (Only if digestion)	NA									NA		—	—
INT/CONT CAL. BLANKS	①					NA	NA	NA		NA		—	—
ICP SERIAL DILUTION	OK		NA	NA	NA	NA	NA	NA	NA	NA	NA	—	—
ICS (ICP only)	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	—	—
LAB. CONTROL SAMPLE	NA											—	—
DUPLICATES	OK											—	—
POSTDIGEST. SPKS. (Only if MS fails)	NA					NA	NA	NA		NA	NA	—	—
MATRIX SPKS.	OK									NA		—	—
OVERALL ASSESS.	OK											—	—

REVIEWER COMMENTS: Uranium sample 272294 (1001) gets a "U" flag for blank contamination.

ITEMS REQUIRING ATTENTION:

UGW Water Sampling Field Activities Verification Checklist

Project Salt Lake
Date(s) of Verification March 14, 01

Date(s) of Water Sampling December 20, 2000
Name of Verifier JEFF PRICE

	Response (Yes, No, N/A)	Comments
1. Is the SAP the primary document directing field procedures?	YES	
List other documents, SOP's, instructions.		
2. Were the sampling locations specified in the planning documents sampled?	YES	Plus two other surface sites.
3. Was field equipment calibrated as specified in the above named documents?	YES	
Were the number and types (alkalinity, temperature, Ec, pH, turbidity, DO, ORP) of field measurements taken as specified?	YES	
Were the standard solutions used for the calibration and operational checks of the field instruments brought to within 10 degrees C of the temperature of the water to be sampled?	YES	
Was the calibration information recorded on the field data sheets?	YES	
4. Was depth to water measured before purging?	YES	
Was this information used to calculate purge volume?	YES	
5. If conventional purging was used, were the wells purged until parameters stabilized and 3 casing volumes were removed, until the well was purged dry, or until 10 casing volumes were removed?	YES	
6. If low-flow purging was used, was the purge rate less than 0.125 gal/min, and was the drawdown less than 0.3 ft?	NA	

7. Were duplicates taken at a frequency of one per 20 samples?	YES	
8. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	YES	
9. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
10. Were QC samples assigned a fictitious site identification number?	YES	
Was the true identity of the samples recorded in the field notes?	YES	
11. Were samples collected in the containers specified?	YES	
Were certified pre-cleaned containers used for the sampling?	YES	
12. Were samples filtered and preserved as specified?	YES	
13. Were the number and types of samples collected as specified?	YES	
14. Were chain of custody records completed and was sample custody maintained?	YES	
15. Were sample ticket book numbers recorded on field data forms and on the chain of custody?	YES	
16. Are field data sheets signed and dated by the team leader?	YES	
17. Was all other pertinent information documented on the field data sheets?	YES	
18. Was the presence or absence of ice in the cooler documented at every sample location?	YES	It was indicated that there was no ice, however, the ambient temp was below freezing.
19. Were water levels measured at the locations specified in the planning documents?	YES	

SALT LAKE CITY, UTAH
DECEMBER 2000 SAMPLING
DATA ASSESSMENT SUMMARY

The DOE-GJO Analytical Laboratory analyzed samples and reported results for this sampling event under requisition number 17252 for the UMTRA Ground Water project.

METALS ANALYSES

The determination of molybdenum and uranium was performed using inductively coupled plasma-mass spectrometry (ICP-MS). The uranium result from sample 272294 (equipment blank) was qualified with a "U" flag (nondetect) in the database because of prep blank contamination.

FIELD ANALYSIS/ACTIVITIES

Two field duplicates were collected for the nine locations sampled. The duplicate samples were collected from surface location 149 and well 134. There are no established regulatory criteria for the evaluation of field duplicate samples; therefore EPA guidance for *laboratory* duplicates (which is conservative for field duplicates) was used to assess duplicate precision. Duplicate sample results met the laboratory duplicate criteria and are considered acceptable.

One equipment blank was collected for the nine locations where samples were collected using non-dedicated equipment. The equipment blank was analyzed for the same constituents as the Salt Lake City environmental samples. There were no analytes detected in the equipment blank in concentrations above the contract-required detection limit (CRDL); therefore, equipment blank results are acceptable.

SAR

Values listed in the SAR were considered valid if: (1) identified low concentrations were the result of low detection limits; (2) the concentration detected was within 50 percent historical minimum or maximum values; (3) there were less than 5 historical samples for comparison. All values listed in the SAR met the criteria stated above and are considered acceptable.

SUMMARY

All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, Surface Water Quality Data by Parameter, and equipment blank database printouts. The meaning of data qualifiers is as defined on the UMTRA database printout or as defined in the USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media Multi-Concentration, Document Number ILMO2.0, 1991. All data in this package are considered validated and may be treated as final results.

A disk copy of the Ground Water Quality Data by Parameter, Surface Water Quality Data by Parameter, and equipment blank database printouts with the qualifiers incorporated is included in this package.

Sam Campbell 4-13-01

Sam Campbell
Data Validation Lead

Date

SAR

SUSPECTED ANOMALIES REPORT

REPORT DATE: 4/12/2001 TIME: 12:53:08 PM

Site : SLC01 SALT LAKE CITY | Test Data Date Range : 12/1/2000 to 12/31/2000 | Older Data Only Used for Baseline Data | 29 Chemical Records | 91 History Records

LOC. ID.	ERR. TYPE FLAG	PARAM CODE / UNITS	ANOMALOUS TEST DATA POINT: LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DETLIM	# OF SAMP. / %NON DETEC	ALL TIME MINIMUMS / ALL TIME MAXIMUMS		LOWER BOUND / UPPER BOUND	3 MOST RECENT SAMPLING EVENTS: LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DETLIM	LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DETLIM	LOG DATE	SAMPLE	VALUE	FLAGS	UNCERTAINTY	DET LIM
0134	5	Mo	12/20/2000	0001	0.0167				12	0.010	0.012	0.0197	10/27/1999	0001	0.0352				8/4/1998	0001	0.0311				3/25/1997	0001	0.0122			
	OK	mg/L			0.0007				0	0.031	0.035	0.0492																		
	5	ORP	12/20/2000	N001	-177.0000				7	-167.000	-166.000	0.0000	10/27/1999	N001	-166.0000				8/4/1998	N001	-92.0000				3/25/1997	N001	-114.0000			
	OK	mV							0	39.000	431.000	-13.3470																		
0144	3	Mo	12/20/2000	0001	0.0629				1	0.137	0.137	0.0685	10/26/1999	0001	0.1370				10/26/1999	0001	0.1370				10/26/1999	0001	0.1370			
	OK	mg/L			0.0007				0	0.137	0.137	0.2740																		
	4	ORP	12/20/2000	N001	-60.0000				1	-187.000	-187.000	-93.5000	10/26/1999	N001	-187.0000				10/26/1999	N001	-187.0000				10/26/1999	N001	-187.0000			
	OK	mV							0	-187.000	-187.000	-374.0000																		
	3	U	12/20/2000	0001	0.0053				1	0.038	0.038	0.0190	10/26/1999	0001	0.0380				10/26/1999	0001	0.0380				10/26/1999	0001	0.0380			
	OK	mg/L			0.0001				0	0.038	0.038	0.0760																		
0149	3	Mo	12/20/2000	0001	0.0321				2	0.090	0.091	0.0449	4/26/2000	0001	0.0898				4/26/2000	N001	0.0909				4/26/2000	N001	0.0909			
	OK	mg/L			0.0007				0	0.090	0.091	0.1818																		
0181	6	U	12/20/2000	0001	0.0020				4	0.002	0.002	0.0018	4/26/2000	N001	0.0018				4/26/2000	0001	0.0018				8/5/1998	0001	0.0019			
	OK	mg/L			0.0001				0	0.002	0.002	0.0018																		

Error Type Flags :
2 - All time high detection limit
3 - Too low (non-trend approach)
4 - Too high (non-trend approach)
5 - Too low (trend approach)
6 - Too high (trend approach)

Flags :
I - Increased detection limit due to required dilution.
L - Less than three bore volumes removed before sampling.
J - Estimated value.
H - Hold time expired, value suspect.

Approved by Sam Campbell Date 4-12-01

Hydrologist "Ok" indicates insignificant variation

WATER QUALITY DATA

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SLC01, SALT LAKE CITY
REPORT DATE: 4/13/2001 8:27 a

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	0134	12/20/2000	0001	LU	D	268	#	-	-
	mg/L	0134	12/20/2000	N001	LU	D	272	#	-	-
	mg/L	0144	12/20/2000	0001	LU		610	#	-	-
	mg/L	0144	12/20/2000	N001	LU		607	#	-	-
Molybdenum	mg/L	0134	12/20/2000	0001	LU	D	0.0167	#	0.0007	-
	mg/L	0134	12/20/2000	0002	LU	D	0.017	#	0.0007	-
	mg/L	0144	12/20/2000	0001	LU		0.0629	#	0.0007	-
ORP of Zobell Solution	mV	0134	12/20/2000	N001	LU	D	243	#	-	-
	mV	0144	12/20/2000	N001	LU		243	#	-	-
Oxidation Reduction Potenti	mV	0134	12/20/2000	N001	LU	D	-177	#	-	-
	mV	0144	12/20/2000	N001	LU		-60	#	-	-
pH	s.u.	0134	12/20/2000	N001	LU	D	7.38	#	-	-
	s.u.	0144	12/20/2000	N001	LU		7.67	#	-	-
Specific Conductance	umhos/cm	0134	12/20/2000	N001	LU	D	1074	#	-	-
	umhos/cm	0144	12/20/2000	N001	LU		10560	#	-	-
Temperature	C	0134	12/20/2000	N001	LU	D	15.7	#	-	-
	C	0144	12/20/2000	N001	LU		13.5	#	-	-
Temperature of Zobell Soluti	C	0134	12/20/2000	N001	LU	D	11.5	#	-	-
	C	0144	12/20/2000	N001	LU		11.6	#	-	-
Turbidity	NTU	0134	12/20/2000	N001	LU	D	10.1	#	-	-
	NTU	0144	12/20/2000	N001	LU		8.06	#	-	-
Uranium	mg/L	0134	12/20/2000	0001	LU	D	0.0091	#	0.0001	-
	mg/L	0134	12/20/2000	0002	LU	D	0.0093	#	0.0001	-
	mg/L	0144	12/20/2000	0001	LU		0.0053	#	0.0001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SLC01, SALT LAKE CITY
REPORT DATE: 4/13/2001 8:27 a

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='SLC01' AND quality_assurance = TRUE AND (NOT (data_validation_qualifiers LIKE '*R*' OR data_validation_qualifiers LIKE '*X*') OR IsNull(data_validation_qualifiers)) AND DATE_SAMPLED between #12/1/2000# and #12/31/2000#

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
C	Pesticide result confirmed by GC-MS.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
D	Analyte determined in diluted sample.
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
>	Result above upper detection limit.
J	Estimated

DATA QUALIFIERS:

J	Estimated value.	F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.
L	Less than 3 bore volumes purged prior to sampling.	R	Unusable result.	X	Location is undefined.
U	Parameter analyzed for but was not detected.				

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SLC01, SALT LAKE CITY
REPORT DATE: 4/13/2001 8:25 am

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	0146	12/20/2000	0001	208			#	-	-
	mg/L	0146	12/20/2000	N001	186			#	-	-
	mg/L	0148	12/20/2000	0001	533			#	-	-
	mg/L	0148	12/20/2000	N001	506			#	-	-
	mg/L	0149	12/20/2000	0001	490			#	-	-
	mg/L	0149	12/20/2000	N001	486			#	-	-
	mg/L	0150	12/20/2000	0001	405			#	-	-
	mg/L	0150	12/20/2000	N001	409			#	-	-
	mg/L	0151	12/20/2000	0001	292			#	-	-
	mg/L	0151	12/20/2000	N001	294			#	-	-
	mg/L	0181	12/20/2000	0001	197			#	-	-
	mg/L	0181	12/20/2000	N001	195			#	-	-
	mg/L	0182	12/20/2000	0001	162			#	-	-
	mg/L	0182	12/20/2000	N001	157			#	-	-
Molybdenum	mg/L	0146	12/20/2000	0001	0.0261			#	0.0007	-
	mg/L	0148	12/20/2000	0001	0.0464			#	0.0007	-
	mg/L	0149	12/20/2000	0001	0.0321			#	0.0007	-
	mg/L	0149	12/20/2000	0002	0.032			#	0.0007	-
	mg/L	0150	12/20/2000	0001	0.0207			#	0.0007	-
	mg/L	0151	12/20/2000	0001	0.0853			#	0.0007	-
	mg/L	0181	12/20/2000	0001	0.0014	B		#	0.0007	-
	mg/L	0182	12/20/2000	0001	0.0085	B		#	0.0007	-
ORP of Zobell Solution	mV	0146	12/20/2000	N001	247			#	-	-
	mV	0148	12/20/2000	N001	247			#	-	-
	mV	0149	12/20/2000	N001	247			#	-	-
	mV	0150	12/20/2000	N001	247			#	-	-
	mV	0151	12/20/2000	N001	247			#	-	-
	mV	0181	12/20/2000	N001	246			#	-	-
	mV	0182	12/20/2000	N001	246			#	-	-
Oxidation Reduction Potenti	mV	0146	12/20/2000	N001	172			#	-	-
	mV	0148	12/20/2000	N001	159			#	-	-
	mV	0149	12/20/2000	N001	152			#	-	-
	mV	0150	12/20/2000	N001	185			#	-	-
	mV	0151	12/20/2000	N001	168			#	-	-
	mV	0181	12/20/2000	N001	141			#	-	-
	mV	0182	12/20/2000	N001	137			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SLC01, SALT LAKE CITY
REPORT DATE: 4/13/2001 8:25 am

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0146	12/20/2000	N001	8.45			#	-	-
	s.u.	0148	12/20/2000	N001	9.09			#	-	-
	s.u.	0149	12/20/2000	N001	8.66			#	-	-
	s.u.	0150	12/20/2000	N001	7.38			#	-	-
	s.u.	0151	12/20/2000	N001	8.22			#	-	-
	s.u.	0181	12/20/2000	N001	8.27			#	-	-
	s.u.	0182	12/20/2000	N001	7.32			#	-	-
Specific Conductance	umhos/cm	0146	12/20/2000	N001	1146			#	-	-
	umhos/cm	0148	12/20/2000	N001	2930			#	-	-
	umhos/cm	0149	12/20/2000	N001	4670			#	-	-
	umhos/cm	0150	12/20/2000	N001	4080			#	-	-
	umhos/cm	0151	12/20/2000	N001	2970			#	-	-
	umhos/cm	0181	12/20/2000	N001	1070			#	-	-
	umhos/cm	0182	12/20/2000	N001	1390			#	-	-
Temperature	C	0146	12/20/2000	N001	9.2			#	-	-
	C	0148	12/20/2000	N001	4.9			#	-	-
	C	0149	12/20/2000	N001	4.4			#	-	-
	C	0150	12/20/2000	N001	4.9			#	-	-
	C	0151	12/20/2000	N001	3			#	-	-
	C	0181	12/20/2000	N001	5.9			#	-	-
	C	0182	12/20/2000	N001	13.3			#	-	-
Temperature of Zobell Soluti	C	0146	12/20/2000	N001	9.5			#	-	-
	C	0148	12/20/2000	N001	9.5			#	-	-
	C	0149	12/20/2000	N001	9.5			#	-	-
	C	0150	12/20/2000	N001	10.2			#	-	-
	C	0151	12/20/2000	N001	10.2			#	-	-
	C	0181	12/20/2000	N001	9.6			#	-	-
	C	0182	12/20/2000	N001	9.6			#	-	-
Uranium	mg/L	0146	12/20/2000	0001	0.0085			#	0.0001	-
	mg/L	0148	12/20/2000	0001	0.187			#	0.0001	-
	mg/L	0149	12/20/2000	0001	0.351			#	0.0001	-
	mg/L	0149	12/20/2000	0002	0.352			#	0.0001	-
	mg/L	0150	12/20/2000	0001	0.0879			#	0.0001	-
	mg/L	0151	12/20/2000	0001	0.0872			#	0.0001	-
	mg/L	0181	12/20/2000	0001	0.002			#	0.0001	-
	mg/L	0182	12/20/2000	0001	0.0033			#	0.0001	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SLC01, SALT LAKE CITY
REPORT DATE: 4/13/2001 8:25 am

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE800 WHERE site_code='SLC01' AND quality_assurance = TRUE AND (NOT (data_validation_qualifiers LIKE "*R*" OR data_validation_qualifiers LIKE "*X*") OR IsNull(data_validation_qualifiers)) AND DATE_SAMPLED between #12/1/2000# and #12/31/2000#

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
C	Pesticide result confirmed by GC-MS.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
D	Analyte determined in diluted sample.
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
>	Result above upper detection limit.
J	Estimated

DATA QUALIFIERS:

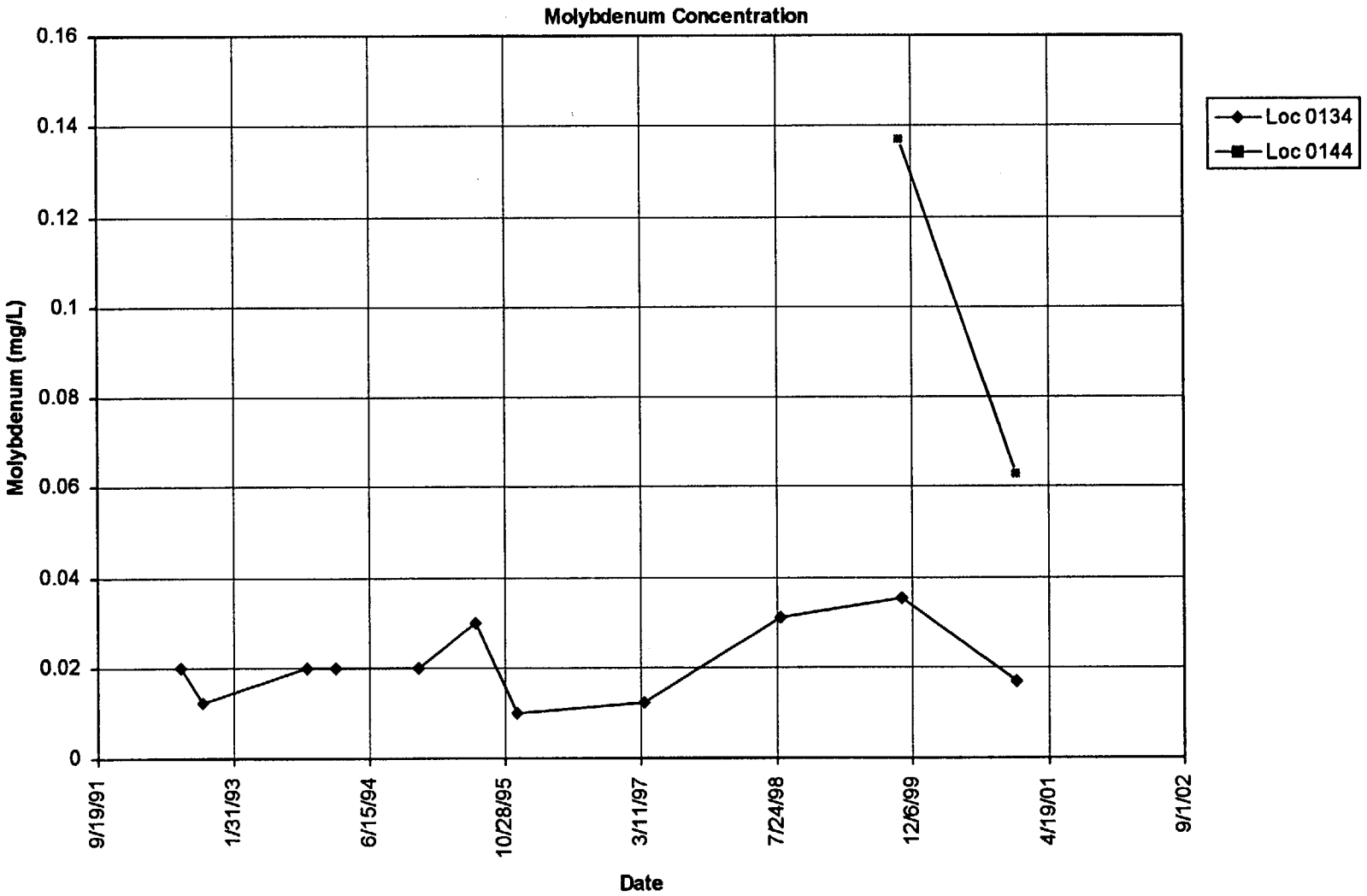
J	Estimated value.
G	Possible grout contamination, pH > 9.
R	Unusable result.
U	Parameter analyzed for but was not detected.
F	Low flow sampling method used.
L	Less than 3 bore volumes purged prior to sampling.
X	Location is undefined.

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

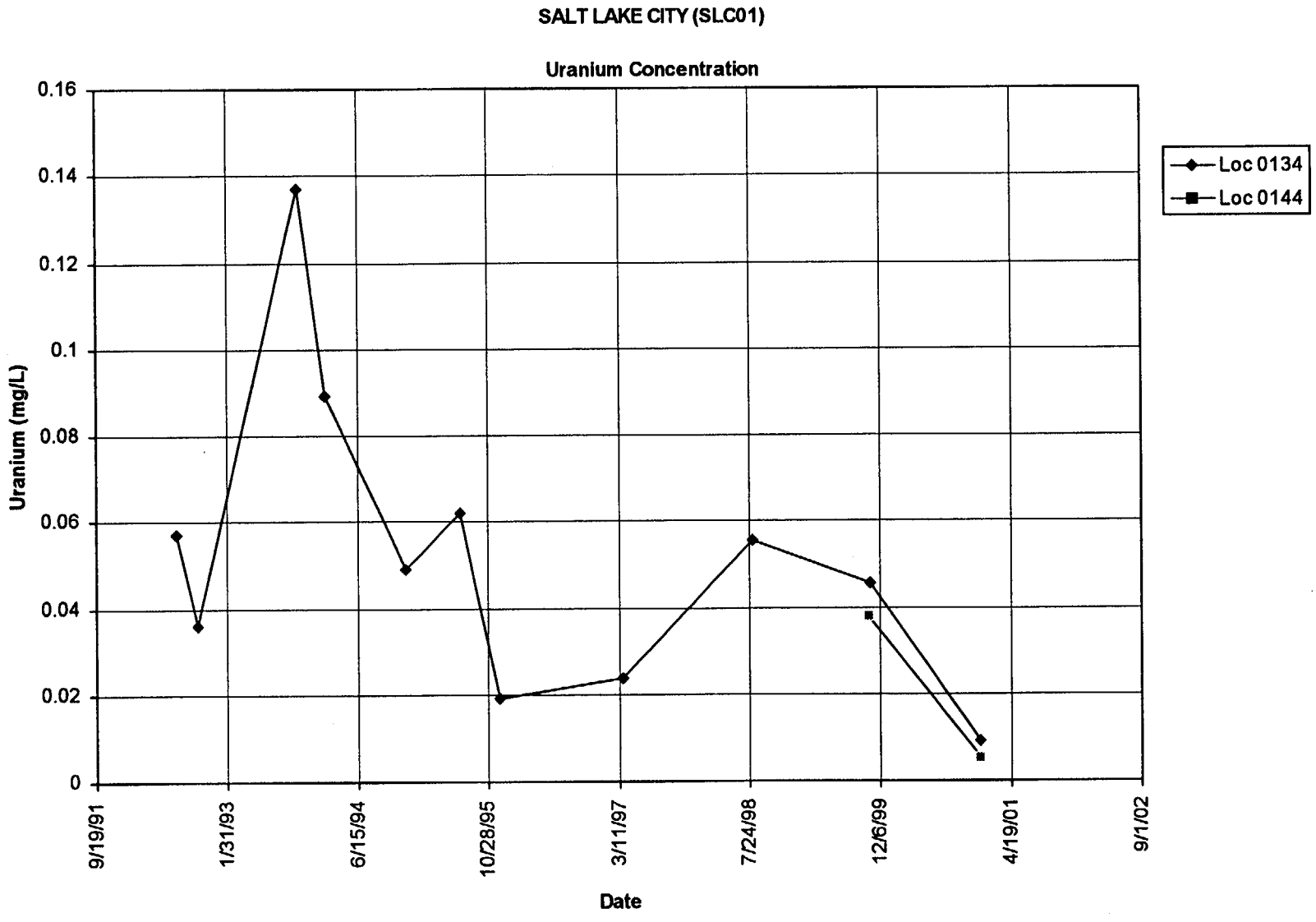
ANALYTE	SITE_CODE	LOCATION_CODE	DATE	SAMPLE_ID	UNIT	RESULT	LAB_QUAL	DATA_VAL_QUAL	DETECT_LIMIT	UNCERTAINTY	SAMPLE_TYPE
Molybdenum	SLC01	0999	12/21/2000	0001	mg/L	0.0007	U		0.0007		E
Uranium	SLC01	0999	12/21/2000	0001	mg/L	0.00022	B	U	0.0001		E

TIME VERSUS CONCENTRATION GRAPHS

SALT LAKE CITY (SLC01)



4/13/2001 8:16 am



4/13/2001 8:19 am

WATER LEVELS

STATIC GROUND WATER LEVELS (USEE700) FOR SITE SLC01, SALT LAKE CITY
REPORT DATE: 4/12/2001 3:12 pm

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0134	D	4239.50	12/20/2000	10:48	14.61	4224.89	
0143		-	12/20/2000	10:41	4.65	-4.65	
0144		-	12/20/2000	09:16	9.15	-9.15	
0145		-	12/20/2000	09:19	0.00	-	F

RECORDS: SELECTED FROM USEE700 WHERE site_code='SLC01' AND LOG_DATE between #12/1/2000# and #12/31/2000#

FLOW CODES:
D DOWN GRADIENT

WATER LEVEL FLAGS:
F Flowing

TRIP REPORT

MACTEC ENVIRONMENTAL RESTORATION SERVICES, LLC

CONTRACT NO.: DE-AC13-96GJ87335
TASK ORDER NO.: MAC01-06
CONTROL NO.: 3100-N/A

MEMO TO: Carl Jacobson

FROM: David Traub DT for

DATE: January 2, 2001

SUBJECT: Trip Report – Salt Lake City: LTSM Program

Dates ~~of Sampling Event~~: ~~December 19~~ through December 20, 2000

Team Members: Dave Traub and Mike Widdop

General: This sampling event was scheduled to sample existing wells and surface water locations at the Salt Lake City processing site. Data loggers at two monitor wells also were downloaded. The LTSM project manager was along for an initial site visit and tour. Two regulators from the State of Utah were present for most of the day and sample splits were provided to them.

Number of Locations Sampled: Nine locations were sampled during this event. Two monitor wells and seven surface water locations were sampled.

Locations Not Sampled: All locations scheduled for sampling were sampled this event. Two additional samples were collected from ponds that were not sampled during the last sampling event in April 2000. The Utah regulators did not collect sample splits from these two ponds located on the south side of the site.

Location Specific Information: Samples were collected from the wells using a 12-volt submersible sampling pump. The surface water samples were collected using a battery powered peristaltic pump. During the sampling event last April it was noted that the new golf course was seeding new grass and a lot of irrigation water was entering the ponds. There was no irrigation during this sampling event.

Data Loggers: Data loggers were downloaded at two wells, 134 and 144. Both were halted and restarted after sampling was completed.

Quality Control Sample Cross Reference: Two sample duplicates were collected, one from well 134 and one at surface location 149. One equipment blank was collected through the peristaltic pump used to collect surface water samples.

Water Level Measurements: Water level measurements were completed on the four wells remaining at the site. One well is artesian and was replugged after verifying the slight upward flow.

Well	Water Level
134	14.61
143	4.65
144	9.15
145	Slight Artesian Flow

Well Inspection Summary: All wells were in good condition.

Requisition Numbers: All locations were sampled for the LTSM Project. The requisition number is 17252. Samples were delivered to the laboratory on December 21, 2000. All samples were received in good condition.

Equipment: No problems.

Regulatory Issues: None

Site Issues: None

Sample ID Numbers:

Sample ID	Location	Comment	Sample ID	Location	Comment
NDK 803	144		NDK 809	148	
NDK 804	134		NDK 810	149	
NDK 805	181		NDK 811	1002	Sample Dup. of Loc. 149
NDK 806	182		NDK 812	150	
NDK 807	1000	Sample Dup. of well 134	NDK 813	151	
NDK 808	146		NDK 814	1001	Equip. Blank

Notes for Next Sampling Event: None

DT/lcg

Distribution:

cc: R. Heydenburg
K. Miller
M. Widdop
Project Record File LSLC 6.07 thru A. Garcia